

## Paleoseismological study of the Kokura-higashi fault and the Fukuchiyama fault zone in northern Kyushu Island, Japan

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The Kokura-higashi fault is an active fault extending in NNE-SSW direction with west-side-up vertical displacement. The Fukuchiyama fault is extending in NNW-SSE direction with also west-side-up vertical displacement. Both are located in the northern Kyushu Island. The Earthquake Research Committee evaluated that the probability of the earthquake occurrence in the future on the Kokura-higashi fault and the Fukuchiyama fault zone are unknown or ambiguous because of the lack of paleoseismological data. We carried out a trench excavation study and boring surveys on both faults.

A trench is excavated on the fault trace of the Kokura-higashi fault, and three trenches are excavated on the Fukuchiyama fault. On the trench wall of the Kokura-higashi fault, a steeply dipping fault cutting bedrocks and overlying sediments was cropped out. The lower part of the sediments includes some humic soil layers with many wood fragments. The fault displaces these layers vertically in more than 1 meter, and cuts until the top of the sediments just below artificial soil. Two faulting events and former two liquefied events are revealed on the trench wall. The penultimate faulting event is recognized because younger sediments cover a subordinate fault cut lower humic soil layers at the downthrown side of the main fault. This event may have occurred in 19-20 ka.

As the result of the trenching survey on the Fukuchiyama fault, the boundary fault between the Paleogene sedimentary rocks and the Paleozoic green rocks was recognized. This fault cuts overlying gravel and sandy silt layer in one of the trenches.

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